Developing a Taxonomy for Strategising in Industrial Networks: Manual and Computer-Assisted Approaches

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Abstract

The purposes of the project described here were (1) to develop a taxonomy of terms relating to strategy used in industrial networks research studies, and (2) to compare manual qualitative content analysis with a computer-assisted text mining approach to taxonomy creation in a social science context. The unit of analysis was abstracts from the IMP research database (publicly available at www.impgroup.org). The main sample used in the analysis comprised 107 abstracts that contained 'strategy' as a keyword. There were marked similarities between the lists of key terms generated by the manual content analysis and by the text mining approach. Where there were differences between the lists of key terms, it was not possible to say whether these were because of unconscious biases in the manual analysis (analysts finding what they expected to find), or because of inadequacies in the text mining approach (which can only identify terms that exist within the data and cannot 'understand' meanings that are implied, but not explicitly stated, by authors).

KEYWORDS: Strategy; text mining; qualitative content analysis; methodology; taxonomy.

Introduction

The industrial networks approach is associated with the IMP Group. The origins of the IMP Group lie in the late 1970s when researchers in several European countries, unhappy with prior attempts to model inter-firm exchange processes, began to collaborate on research projects to investigate the processes of marketing and purchasing between businesses. This work eventually coalesced around a large-scale multi-country empirical study (Håkansson, 1982), and an annual conference that began in 1984 and has continued to this day. Initially the approach of the IMP Group was to concentrate on enduring relationships between buying and selling firms, which were seen as an important empirical phenomenon that was difficult to explain using conventional market models. This 'dyadic' approach, in which the relationship between two firms is the unit of analysis, remains a part of the work of the Group, but subsequent empirical and conceptual work led to the conclusion that relationships can only be properly understood in the context of their connections to wider business networks. Consequently, much recent IMP Group research has sought to describe and explain the behaviour of firms in industrial networks.

In contrast to many other areas of research in the field of business and management, the IMP approach has generally avoided prescriptivism. Indeed, one prominent argument that has been developed within the IMP Group is that there are grave difficulties associated with providing general prescriptions for successful management action to firms operating in industrial networks. For example, Ford et al (2003) developed the idea of the 'myth of independence', arguing that firms have very little latitude to develop their own independent strategic actions since they are always dependent on their relationships with other firms: the outcomes of strategic actions are inherently unpredictable. The contention is not that firms do not strategise in networks; rather, it is that conventional notions of strategy based on the idea of independent businesses operating in an impersonal environment are a poor model of the strategy process and that new notions of strategy must be found.

Recently, it has been suggested that much information about strategising in industrial networks must exist within the large number of prior studies conducted in the IMP research tradition, and that one approach to understanding network strategy would be through a systematic analysis of the IMP research archive. The study described here was designed to evaluate the feasibility of this idea. As a first step, it was concluded that a taxonomic study would be useful, in order to uncover the terminology that is used to discuss strategy in networks. Initially, the intention was to conduct a manual analysis only, using a qualitative content analysis approach employing experienced researchers to undertake manual coding. However, since the objectives include the construction of a taxonomy based on a set of natural language documents, the opportunity was taken to use a computerised text mining approach in addition to the manual approach. The text mining tool used in the study (TerMine) was initially developed to build lists of key technical terms in the biological and medical sciences, where taxonomic considerations have for centuries been considered of great importance. However, text mining has been applied rather seldom in the social sciences. In consequence, this study provided the opportunity not only to make a contribution to the particular domain of interest – industrial networks – but to make a methodological contribution by comparing the value of TerMine analysis to manual analysis in what is largely virgin territory for text mining.

Consequently, this study had two principal objectives: the first, to develop a preliminary taxonomy of terms related to strategising in networks, and the second, to evaluate a text mining approach to taxonomy development in a particular social science context, by comparing a text mining analysis with a manual analysis. Before moving on to describe the methods used in the study a little time will be spent in a discussion of the domain of interest, and in justifying the importance of the first objective. So in the next section we present a brief discussion of IMP literature pertaining to strategy. Subsequently, the research methods are described, including the selection of the unit of analysis (the abstracts of papers from the online IMP database), the manual analysis process, and the TerMine text mining analysis process. In the results section, there is firstly a discussion of the taxonomy produced from the manual analysis, followed by a comparison between those results and the results from the TerMine analysis. The results of a supplementary analysis, where TerMine was applied to a random sample of abstracts from the same source database, are also discussed.

The focal domain: 'IMP approach to strategy'

Baraldi et al (2007) provided a summary of the 'IMP approach to strategy' when conducting a comparative analysis with five other important schools of thought in strategy – rational planning, positioning, resource-based, emergent, and strategy-as-practice. In doing so they attempted to explicate the explicit contribution that IMP researchers have made to the field of strategy. While strategy has not always been an important explicit theme in IMP research, it has played a significant role in the development of the body of knowledge that surrounds interaction, relationships and networks (Baraldi et al 2007). Intuitively, it seems that the earlier work in the IMP tradition (Håkansson, 1982, Turnbull and Valla, 1986, Ford, 1990 and Axelsson and Easton, 1992) contained more explicit discussion of strategy than has been the case in recent years. For example: in 'Understanding Business Markets, 1st edition' (Ford, 1990) the second section in the book is dedicated to *Developing Marketing Strategy*; the title of Turnbull and Valla's (1986) work was *Strategies for International Industrial Markets: the Management of Customer Relationships in European Industrial Markets* demonstrating a clear and explicit focus on the strategic management of customer relationships; the index to the 'IMP bible' (Håkansson 1982) has six references covering 36 pages to 'marketing strategy', and six references covering 28 pages to 'purchasing strategy'.

However, by the very nature of the research undertaken within the interaction and networks tradition, it is unlikely that strategy will emerge strongly as an *explicit* theme. Research within this tradition is usually not prescriptive; the emphasis is placed on describing and explaining marketing, purchasing and network phenomena and placing them in a theoretical context, rather than on attempting directly to answer managerial questions. Within the IMP research tradition one would expect to find less emphasis on consciously planned strategy, and more emphasis on emergent strategy. A prominent

argument within the industrial networks literature is that the individual actor can exert very little control, from which it follows that deliberate, planned strategies for the 'development' of the network from the perspective of a single actor are unlikely to be realised (Ford and Håkansson 2006). It is far more likely that the actor will be able to construct a coherent narrative for his strategy retrospectively – that is to say, using the notion of emergent strategy (Mintzberg and McHugh 1985). In a book that, according to the authors, is designed to summarise the IMP approach for managers and students, Ford et al (2003) quite explicitly set out to undermine the notion that strategy in industrial networks can reasonably be conceptualised as a carefully planned and implemented rational response to environmental and competitive circumstances. They do this through three 'myths': the myth of action, the myth of independence, and the myth of completeness. These are all important for our purposes, but the 'myth of independence' is particularly important, asserting, bluntly, that it is a myth to suppose that a company is able to take strategic action independently: "Companies ... have limited freedom to act independently and the outcomes of their actions will be strongly influenced by the attitudes and actions of those with whom they have relationships" (Ford et al 2003, p6). Similarly, Håkansson and Ford (2002, p137) have argued that: "Interdependence between companies means that the strategy process is interactive, evolutionary and responsive, rather than independently developed and implemented".

There is an intriguing complementarity between the three 'myths' of Ford et al (2003), and three 'fallacies of strategic planning' identified by Mintzberg et al (1998). Those three 'fallacies' are the fallacy of predetermination, the fallacy of detachment and the fallacy of formalisation (Mintzberg et al 1998, pp. 66-77). The contention is that formal strategic planning using a rational planning framework has inherent limitations because forecasts are unreliable (fallacy of predetermination), because planning must involve operational personnel as well as planners (the fallacy of detachment), and because there are strict limitations on the efficacy of formal planning systems (the fallacy of formalisation). These three 'fallacies' seem neither to contradict nor to overlap with the 'myths' of Ford et al (2003). Indeed, in accordance with the earlier analysis of Baraldi et al (2007), it appears that the conclusions reached by Ford and colleagues about the problematic nature of strategy formulation in industrial networks are consistent with the findings of Mintzberg and colleagues concerning the general nature of strategy. The work of Mintzberg and colleagues over the years has suggested that strategy is poorly described by rational process models, is substantially 'emergent', dependent on organisational responses to contingencies, and best understood in retrospect (Mintzberg et al 1998). The work of IMP scholars has delved more deeply into the strategy process in the specific context of industrial networks, and has raised doubts about the very possibility of independent strategic action in networks (Håkansson & Snehota 1989, Ford et al 2003).

Within a research tradition which largely avoids prescriptivism and which prefers rich descriptions of complex phenomena, we conclude that much of the 'strategy content' will be implicit rather than explicit. From this we conclude that an inductive approach is most suited to the task of extracting information about strategy from the IMP *oeuvre*. As a first step towards developing an inductive theory of strategising in networks, it is necessary to identify the key terms that are used in the field when referring to strategy. These can then be used to identify prior empirical and conceptual studies addressing strategic issues, from which, in a subsequent inductive loop, it is hoped to extract information about the processes of strategising themselves.

Research Methods

Sampling

We drew two samples from the online database of the IMP research network. One of these was a selective sample designed to include 'strategy rich' articles, while the other was a random sample. The sampling procedures are explained in this section.

For the principal analysis we selected a sub-sample of articles from the online IMP research database (www.impgroup.org), which at the time contained a total of 1,509 research papers (for comparison, Henneberg et al (2007) used a database of 2,172 IMP research papers, because they included the papers from older conferences for which electronic databases are not available).The goals of the principal analysis were to extract a meaningful coding framework of strategy themes from the data, and to compare the results of a qualitative manual analysis with the results obtained using TerMine text mining software. Accordingly, we selected for our sample the 107[1] articles in the database that had included the word 'strategy' in the abstract. Brief details of these 107 articles are shown in Appendix 1. Table 1 summarises our sample in terms of the country of affiliation of the first-named author; it shows no strong bias, and includes authors from all of the principal countries involved in the IMP research network, in proportions that are representative of conference participation.

Table 1: Country of affiliation (by first authorship)

Country of affiliation of 1st author	**Frequency**
Sweden	20
UK	16
Finland	11
France	9
Australia	8
Italy	8
Norway	6
Germany	5
Denmark	4
Portugal	3
Russia	3
Tanzania,	2
Japan	2
Poland	2
The Netherlands	2
Other – once each (Belgium, USA, Hungary, Slovenia, New Zealand, two affiliations not given)	7

Subsequently, to test the hypothesis that the selective sample of 'strategy rich' abstracts was, indeed, richer in strategic content than a random sample of abstracts from the same database, a TerMine text mining analysis was conducted on a random sample of 52 abstracts. That sample was drawn using a systematic random sampling approach. The database, in its native format, is organised sequentially from article/abstract number 1 upwards. To take a systematic random sample, the number of articles in the database was divided by the desired sample size, and this ratio was used to identify sample members (occasionally an article in the database did not have an abstract, in which case the sampled article was replaced by the next article in sequence).

Qualitative Content Analysis (Manual Coding)

The analysis processes involved constructing a set of key terms pertaining to strategising in networks inductively from the abstracts of the articles contained in the samples. This process is further explained and justified in this section.

A qualitative content analysis procedure using manual coding was applied only to the 'selective' sample of abstracts, that is, to the sample of abstracts that was expected to represent 'strategy rich' articles. The analytical method used for the manual coding process was based on the methods of Easton, Zolkiewski and Bettany (2003), and of Furrer, Thomas and Goussevskaia (2008). The method

[1] An earlier version of this paper presented findings from a sample of 55 such abstracts; these original 55 are included in our sample of 107

involves coding the abstracts identified in the conference proceedings to identify 'strategic themes'. The strategic themes (codes) may either be standalone, or may be hierarchically related, so that there is a hierarchy of codes. In this analysis all three coders found that two levels of coding (codes and sub-codes) were sufficient. The strategic themes (codes) may be *a priori* (derived from prior theoretical literature, for example) or *in vivo* (derived from the articles themselves). For this study we adopted an *in vivo* coding strategy (comparable with Furrer, Thomas and Goussevskaia, 2008).

Coding was undertaken by three individual coders, all of whom have been involved in research in the IMP tradition for a number of years and who, therefore, could be considered to be experienced in the field. To cross-check agreement with respect to allocation of codes, three abstracts were coded by all three judges; all the coders derived the same codes (with some minor differences of nomenclature that were resolved through discussion) for these abstracts. This result could be considered surprising since one might expect some subjective interpretation of the qualitative data, but is perhaps explained by the relatively small amount of material that was coded and the experience of the coders in the area. The reliability of the judgement (as suggested by Perreault and Leigh, 1989) was not calculated at this stage, but will be calculated when further rounds of analysis are conducted.

The rationale for using abstracts rather than full articles was the same as that followed by Easton et al (2003) and acknowledges the benefits and limitations that this entails. Using abstracts as a proxy enables more articles to be included in the sample, yet it is recognized that some abstracts may not be truly representative of the material contained in the paper. One of the major questions that must be resolved in further work is how to extend the analysis to cover more material; it is possible that abstract coding could be used as a method to identify core articles that are taken forward for further detailed analysis.

Text Mining Analysis

The text mining analysis used the TerMine web demonstration service available at http://www.nactem.ac.uk/software/termine/. This web demonstration service is suitable for small-scale analyses, such as those reported here; for the analysis of larger datasets the UK's National Centre for Text Mining offers a batch processing service. TerMine is one of several text mining tools developed at the National Centre for Text Mining for use within the academic community. The fundamental aim of text mining is to provide computerised tools that can analyse natural language text and extract information that has meaning for the human reader. Text mining involves the application of techniques from areas such as information retrieval, natural language processing, information exchange and data mining. That is to say that the text mining process 'makes sense' of a dataset of documents by using search routines, the computerised analysis of natural language (such as part-of-speech tagging and parsing), data structuring (such as the identification of key terms), and knowledge discovery (identifying patterns in large sets of data) (National Text Mining Centre 2008).

TerMine itself is "a service for automatic term recognition which identifies the most important terms in a document ranking them according to their significance" (Ananiadou 2007). The ranking of key terms is based on the C-value method for automatic term recognition. The C-value method uses both linguistic and statistical information to extract technical terms from natural text. The linguistic part consists of building a list of terms that are likely to be meaningful; the components of this part are breaking the text down into parts-of-speech, using a linguistic filter to select parts-of-speech that are most likely to convey meaning, and building a stop list of words which are not expected to be term words in the field. The statistical part calculates a measure of the "termhood" of each candidate string, based on the frequency with which the candidate string occurs, the frequency with which it occurs as part of longer candidate terms, the number of these longer candidate terms, and the word-length of the candidate string (Frantzi et al 2000). The output from the TerMine analysis is a list of technical terms ranked in order of their C-value. For our purposes, we treated the output from the TerMine analysis of the 'strategy rich' sample of abstracts as a potential taxonomy of strategic concepts within the industrial networks (IMP) approach. The output from the TerMine analysis of the random sample of

abstracts can be seen as both a control, with which to compare the taxonomy of strategic concepts, and as an embryonic general taxonomy of terms associated with the industrial networks field.

The intention was to exercise human judgement on the output from the TerMine analysis, in order to exclude spurious terms, or terms which correctly identified recurring themes in the data, but where those terms were of no theoretical significance (for example, IMP researchers have often studied the forestry and paper industries, hence a 'theme' of this sort might be expected to emerge, but it would not be of interest for our purposes). In practice little human intervention was needed since the terms identified by TerMine were largely germane.

Results and Discussion

Findings from the Qualitative Content Analysis (Manual Analysis)

In this section we discuss the results from the manual analysis only. This discussion concerns the strategy-rich sample of 107 abstracts only, since the comparison sample was not analysed manually.

Table 2 shows the frequency distribution for the number of times that the article abstracts were coded. The mean number of codes attached to each abstract was 2.6. That is to say that, on average, we coded each of the 107 articles to 2.6 'strategic themes'. Four abstracts rather surprisingly did not reveal any 'strategy' codes, which raises interesting questions about how authors decide to allocate keywords to their abstracts/articles (it may also reinforce the limitations we have noted about only coding the abstracts rather than full papers, since strategy may have been discussed in the full paper but not mentioned in the abstract). This average compares to an average of 3.6 codes per article reported by Furrer et al (2008) in their similar study of 2,125 articles in strategic management journals. However, in the Furrer et al (2008) study the researchers examined the whole of each article, whereas for this study we have adopted the method employed by Easton et al (2003), and have coded the *abstracts* rather than the entire paper. Therefore, while it may be that this indicates a lower density of strategic issues in the selective sample of IMP literature, the result could be the outcome of slightly different analytical methods.

Table 2: Number of codes used per abstract

Number of terms used to code abstract	Frequency (number of abstracts)
0	4
1	30
2	28
3	19
4	9
5	10
6	3
7	2
9	1
12	1

The complete set of first and second-order codes that was used in the analysis can be seen in Appendix 2. Table 3 shows the 24 first-order codes, and the frequency with which each of these codes was used (for comparison, Furrer et al (2008) had a list of 26 "major keywords"). What Table 3 does show is that more 'traditional' conceptions of marketing strategy – such as competition and the environment – are far from absent from IMP studies. However, as expected, they are less common in our sample than the core IMP concepts of 'network' and 'relationship'. Notice that, in our analysis, we have selected references to 'network' and 'relationship' that demonstrate a strategic orientation;

instances where the authors have referred to networks or relationships purely descriptively, with no strategic content, were not coded for this study.

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Table 3: Frequency with which first-order codes were used

Concept	**Frequency**
Process, (time, change, development, planning, initiation, implementation)	36
Network	34
Global, international, and multinational strategies	25
Customer and **no** relationship/network	23
Relationship (also: cooperation)	21
Supplier and **no** relationship/network	20
Competition and competitive analysis	16
Customer and relationship/network	13
Functional strategies	13
Methodologies, theories, and research issues	13
Interaction	11
Capabilities, competencies, and resource-based view of the firm	10
Environmental modelling: governmental, social, and political influences on strategy	10
Power, position	10
Value	9
Motivation	6
R&D, technology, innovation	5
Boundaries	5
Strategic alliances, Joint Ventures	4
Supplier and relationship/network	4
Leadership, management style, and learning	3
Channel distribution	3
Licensing	2
Corporate restructuring	2
Other – difficult to group (Soft assembled strategy, rents, strategy creators, business/service model, nature of strategy)	5

Further considerations of the first order codes and their related second order codes (see Appendix 2) provide insight into the 'IMP' view/domain of strategy. By far the largest category identified was process (total: 36). This is a broad category covering concepts such as time, planning/implementation, and development. Network, perhaps not surprisingly, came second in this synthesis; some 30% of identified strategic concepts concern business relationship or business network, often in connection to customer or supplier. This suggests that there is a strong interest in inter-organisational aspects of strategy. What was perhaps more surprising was the number of identified strategic concepts that also contain 'customer' or 'supplier', but with **no** explicit mention of relationship (another 43 in total). One possibility is that researchers within the IMP tradition, when reporting research results within their own research group, assume that the notion of buyer-supplier relationships is taken-for-granted and need not be mentioned explicitly. While this kind of academic short-hand may be useful for communicating quickly within the network of like-minded researchers, it may make it more difficult to communicate results to practitioners and researchers who are less familiar with the industrial networks body of knowledge. Nonetheless, in our sample of IMP abstracts, in approximately half of the situations, use of strategy is connected to the following: (1) customer or supplier, either with or

without specific mention of business relationship/network in connection to these, (2) business relationships (3) business networks (4) interaction, (5) strategic alliances.

Internationalisation and global strategies also are discussed extensively (total: 25), for example "internationalisation strategy". This again is not surprising given IMP's international focus. Of more interest is the fact that competition (total: 16) capabilities and competences (10) and environment (10) were so prevalent. This use of terms more usually associated with conventional approaches to strategy illustrates that IMP thinking is not divorced from mainstream strategy literature and that the ideas and issues from the latter also permeate the IMP domain.

Power/position (total: 10) and boundaries (total: 5) also were noteworthy in the sample. This leads us to suggest that strategy in an IMP context may relate to the recognition that organizations are part of a network, thus "strategic positions", "network position" and directing attention towards strategies concerning boundaries (for example, "insourcing", "outsourcing", "vertical integration") become important. Value (total: 9) was also prevalent in the sample. Again, a priori hypothesising would include value as an important IMP concept and also one that should be central to mainstream strategy, not least because relationships and networks are considered to provide value/be valuable, thus part of strategy should concern these aspects, for example "relationship value", "value network", and "value to customer.

Comparison between the Manual Analysis and the TerMine Analyses

In this section we compare the results from the manual analysis of the 107 abstracts in the strategy rich sample with the TerMine analysis of the same sample, and with the TerMine analysis of the random sample of abstracts from the same database.

In order to conduct a fairly straightforward and intuitive comparison between the three analyses (manual analysis of strategy rich sample, TerMine analysis of strategy rich sample, TerMine analysis of random sample), attention focused on the top 17 terms generated from each analysis. The results are shown in Table 4 (for ease of comparison, the identified strategic concepts are used in this table rather than the higher order codes which are discussed in the section above). A few adjustments were made to the raw analyses before compiling the 'top 17' lists shown in this Table. First, the most frequently occurring term in the manual analysis, 'strategy', was excluded on the grounds that the sample was specifically selected to include abstracts addressing 'strategy', so that this term *defines* the domain of interest, rather than being a technical term *within* the domain. Secondly, a small number of spurious, irrelevant or duplicate terms were removed from the TerMine 'top 17 lists'. What was surprising was how few of the terms with high C-values[2] were spurious or irrelevant; a few near duplicates are to be expected, since one of the functions of the software is to search for 'nested' technical terms. From the analysis of the strategy rich sample six terms were removed: paper industry, long-term business relationship (deemed a duplicate), business market, supply chain management, Japanese industrial company, and purchasing function (deemed a duplicate). From the analysis of the random sample 10 terms were removed: customer portfolio (deemed a duplicate), food marketing system, local authority, customer reference, managerial implication, conceptual framework, experiential learning, business context, venture capital industry, and start-up technology company.

Table 4 is organised as follows. Column 1 shows the top 17 terms that emerged from the manual analysis of the strategy rich sample, and column 2 shows the frequency with which abstracts were coded to those terms. Column 3 shows the top 17 terms that emerged from the TerMine analysis of the strategy rich sample, and column 4 shows the C-values for those terms. Column 5 shows the top 17 terms that emerged from the TerMine analysis of the random sample, and column 6 shows the C-values for those terms. In columns 3 and 5 those terms have been shaded that also appeared within the overall list of 205 codes and sub-codes identified in the manual analysis.

[2] The C-value gives the rank order, and some indication of the "distance between the terms" in terms of their importance in the data.

It is quickly apparent from Table 4 that there is considerable overlap between the TerMine analysis of the strategy rich sample and the manual analysis of that sample, while there is no overlap between the TerMine analysis of the random sample and the manual sample. There is some overlap between the two TerMine analyses. Of the top 17 terms identified by the TerMine analysis of the strategy rich sample, 11 were also identified as relevant terms during the manual analysis of the same data. However, of the top 17 terms identified by the TerMine analysis of the random sample, none were identified in the manual analysis of the strategy rich sample (four terms were identified in both TerMine samples). This provides considerable evidence in support of the hypothesis that there were important differences between the two samples, and supports the decision to conduct the analysis of strategic themes using a sample selected to be strategy rich. The density of terms related to strategy and strategising seems to be quite low in the random sample of IMP abstracts, and much higher in the sample selected for high strategy content.

One way of evaluating the TerMine analysis is by comparing it against the manual analysis. Of the 17 terms with the highest C-values extracted by TerMine from the strategy rich sample, 11 were identical to or very close synonyms of terms that were included in the overall list of 81 codes and sub-codes produced through manual coding. The seven terms extracted by TerMine from the strategy rich sample but judged not to have a very close synonym in the manual analysis were 'business relationship', 'business network', 'industrial network', 'supply network', 'strategic management', 'network structure', and 'marketing practice'. Business relationship, business network, industrial network, supply network, network structure, and marketing practice can all be considered as descriptive rather than 'strategic terms' and would be therefore unlikely to feature in the manual analysis. The term 'strategic management' is a generic term in the field of strategy, which can be used quite loosely in the literature and could be seen as synonymous with 'business strategy' or 'corporate strategy' (both of which appear in the manual list). Depending on the extent to which these judgements are considered to be valid, one may conclude that 10 or 11 out of the top 17 TerMine terms are identical to or close synonyms of terms identified during the manual coding. What is perhaps more surprising is that 'customer portfolio analysis' appears in the random sample but not in the 'strategy rich' top 17. Both 'customer relationship portfolio strategy' and 'relationship portfolio' were identified as codes within the manual analysis, and while customer portfolio analysis has been a focus of much attention in early IMP literature (see Zolkiewski and Turnbull, 2002) it does not seem to be prevalent in our current sample. This may be because researchers are not including 'portfolio analysis' and 'strategy' in their abstracts[3] or because portfolio researchers do not see this as a strategic tool. To summarise, when judged against manual analysis by experienced researchers in the field, TerMine seems to have done a good job of identifying technical terms in the domain of strategising in industrial networks.

Another interesting question is whether the TerMine results can assist in a critical evaluation of the manual analysis of the strategy rich sample. There are good reasons to think that it can. An analysis of terms that appeared in the top 17 of the manual coding list, but not in the top 17 of the TerMine analysis of the strategy rich sample, yields interesting results. In particular, consider the following four terms: 'relationship value', 'corporate strategy', 'strategising' and 'market positioning'. All four appear in the top 17 terms on the manual list. However, the term 'value' in general and 'relationship value' specifically did not appear at all in the TerMine analysis, while the other three terms (corporate strategy, strategising, market positioning) appeared in equal 702nd place on the TerMine list with C-values of 1. In short, the text mining analysis does not provide strong support for the use of these four terms extracted through manual analysis. What makes this result of some theoretical interest is that some of those terms, most notably 'market positioning', are characteristic of the conventional approaches to strategy that have been rejected by many proponents of the industrial networks view. The manual analysis of the 107 strategy rich abstracts concludes that these themes are, nevertheless, present in IMP strategy rich literature, while the TerMine analysis of the same data set concludes that they are not. Two competing explanations suggest themselves: first, that the manual coders expected

[3] Using portfolio as a keyword in an IMP abstract search revealed 18 papers, only two of which appear in our sample.

to find these terms in the data and sought evidence to confirm their preconceptions, or, second, that those themes are genuinely present in the data but are implicit – 'not mentioned in so many words' – and therefore the software was incapable of finding them. The latter explanation suffers from the obvious weakness that terns such as corporate strategy and market positioning are part of the conventional vocabulary of marketing strategy and authors who wanted to write about these concepts would most probably use those very words, rather than any circumlocutions.

Table 4: Top 17 Terms Generated from the Three Analyses

IMP – Manual Analysis (strategy rich sample – ISC)	**FREQ.**	**IMP – TerMine Analysis (strategy rich sample)**	**C**	**IMP – TerMine Analysis (random sample)**	**C**
Marketing strategy	10	Supply chain	29.5	Business relationship	17.7
Internationalisation strategy	10	Business relationship	26.4	Customer portfolio analysis	12.9
Network strategy	7	Relationship marketing	23.7	Tacit knowledge	12
Relationship strategy	6	Business network	20	Knowledge integrator node	6.3
Competitive advantage	6	Competitive advantage	17.4	Transaction cost	5
Strategic development	6	Marketing strategy	14	Service quality	4
Relationship marketing	4	Relationship management	11.5	Innovation process	4
Purchasing strategy	4	Business strategy	11	Network competence	4
Business strategy	4	Strategic network	10	Marketing function	4
Business environment	3	Supply chain management	9.5	Supply chain	4
Corporate strategy	3	Industrial network	9.5	Industrial network	4
Market positioning	3	Supply network	9	Relational norm	4
Network strategy	3	Strategic management	7.8	Business network	4
Relationship management	3	Network structure	7.8	Network structure	4
Relationship value	3	Customer relationship	7.75	Social exchange theory	3.17
Strategy process	3	Internationalisation strategy	7	Transaction cost theory	3.17
Strategising	3	Marketing practice	6.75	IMP group	3

Conclusion & Research Implications

The limitations of this study have been mentioned before and must be borne in mind when trying to draw conclusions from our analysis. In particular, by conducting manual qualitative coding and text-mining on the abstracts from research studies, rather than on the full papers, it is possible that 'strategic' aspects of certain studies, which may not be reflected properly in the abstract, have been excluded from the analysis. However, some tentative conclusions can be drawn, and a number of ideas for further research have grown out of this work. On a methodological note, the approach used to select the main sample for the analysis – the strategy rich sample – appears to have functioned as intended, since the strategy content of that sample was clearly much higher than in a comparable random sample taken from the same sampling frame.

The objectives were to develop a preliminary taxonomy of terms related to strategising in networks, and to evaluate a text mining approach to taxonomy development in a particular social science context, by comparing a text mining analysis with a manual analysis. A preliminary taxonomy of terms concerning strategising in networks is provided in appendix 2, with a summary of the most frequently occurring terms given in Table 4.

The text mining approach to generating appropriate scientific terms in this knowledge domain was successful in creating a list of terms that shows a reasonably high degree of consistency with the manual analysis carried out using expert judgement. In addition, comparing the TerMine analysis with the manual analysis has identified a number of terms, extracted by the human coders, which may not be robust technical terms for this specific domain, and which may have been transferred unconsciously from another domain within the field of business and management studies. This hypothesis deserves further exploration. One may hypothesise that, on the positive side, the mechanised nature of text mining may eliminate biases in human judgement, while on the negative side, an automated process clearly cannot see words that 'are not there', so cannot identify cases where an author is describing a well-known concept but using unusual words to do it. On the basis of this study, we suggest that using manual and automated processes alongside each other may be a useful way to proceed in management and other social science domains. The clarity and stability of terminology in social science domains is probably lower than in domains such as medical science. We hypothesise, therefore, that automated term recognition processes may be less reliable in the social sciences than in medical science.

Two other directions in which to extend the study are apparent: firstly, to undertake a deeper and broader analysis of the database of IMP research and, secondly, to undertake comparative analyses of parallel bodies of knowledge. From a total of 1,509 papers on the IMP database at the time of the analysis, 107 (7.1%) contained 'strategy' in the abstract. From this we conclude that, as expected, a relatively small proportion of IMP papers deal with strategy explicitly. However, many of the first- and second-order codes developed from this project could be used to search through the database to identify more abstracts that deal with strategic themes. Furthermore, IMP research is often thought to deal with strategic themes implicitly - that is to say addressing strategic themes, or generating implications for strategy, without any explicit mention of the term itself. A deeper analysis of the database would be necessary, first to establish whether it is the case that there is a substantial amount of hidden or implicit material concerning strategic themes, and second to extract key terms concerning those themes.

Comparative analyses of parallel bodies of knowledge could be used to investigate the extent to which there is a common language of strategy in use within the management disciplines. Such comparisons could consider the proportion of papers dealing with strategy, and how strategic terms are used (the variability in the use of the terminology), either for specific academic journals or for bodies of work produced by fairly well-defined schools of thought. In particular, different interpretations of terms concerning strategy - that is to say the degree to which there is or is not a shared terminology - are of potential interest. For example, in the industrial networks approach scholars typically use the network of business relationships as the unit of analysis and investigate interdependencies among companies.

In the more conventional strategy literature one expects that the unit of analysis will normally be the individual firm and investigations will focus on how the firm (regarded as capable of planning and implementing an independent strategy) deals with challenges and opportunities at the industry and macro-environmental levels. Such suppositions are worthy of further investigation. If the outcome of such an exercise were to identify inconsistencies in the use of terminology, and so to facilitate greater clarity in the use of terminology, then that would constitute useful progress.

Next steps

So far this project has made progress in identifying the terminology employed by interaction and networks scholars when they address issues to do with strategy and strategising in their research. A classification of relevant terms has been extracted inductively from prior research studies in the field. The ultimate goal is to cast light on the processes of strategy formulation in industrial networks; developing a classification of terms is one important step forward towards this goal. We envisage taking this work forward through three sub-projects. These sub-projects address the following objectives.

- First, to what extent does our classification of strategic terms meet peer approval within the community of interaction and network researchers?
- Second, can these terms be used as the basis to develop a research instrument to investigate the perspective of business practitioners on strategising in networks?
- Third, once we have a classification system that is enhanced by peer inspection and by the perspective of business practitioners, can it be used successfully to understand strategising processes in real-world networks?

The first objective entails exposing the classification system to a substantial number of experienced researchers in the field and gathering their feedback. We will pursue this by constructing a web-site describing our work, within which we will include a summary of our 'strategising taxonomy'. There will be a simple self-completion online questionnaire built into the web-site by means of which visitors can provide an opinion on the classification system. Traffic will be generated for the site through a direct email, with an embedded web-link, addressed to active industrial network researchers.

To pursue the second objective we envisage designing and administering an online questionnaire, based around our classification system, to a sample of business practitioners. The details of the sampling frame and sampling method remain to be developed, but the sample would certainly include respondents from more than one country and more than one industry sector. For example, a sample comprising business practitioners from an Anglo-Saxon country (such as the UK), a Nordic country (such as Norway), and a Mediterranean country (such as Spain), with respondents from a high-technology sector and from a low-technology sector, might generate interesting results. The questionnaire would use statements based on the 'strategising taxonomy', and would seek to establish how important the respondents believed these aspects of strategy to be in their own strategic decision-making. While the detailed work of questionnaire development remains to be done, Table 5 provides an early insight into how it might be approached.

Finally, having enriched our understanding of 'strategising in industrial networks' from both the academic and the practitioner perspectives, we envisage conducting in-depth case studies of the strategising process in a small number of European firms. This would be the most complex phase of the study, requiring the negotiation of excellent access if anything other than a superficial understanding is to be achieved. For example, it is likely that the majority of firms engage in formal strategic planning processes, and that these are often based on textbook models, which usually embody rational planning principles. The question is whether such processes are the entirety of the firm's strategy-making, are only part of it, or are (conceivably) an activity that is divorced from the real strategic decisions facing the organisation. It could be the case, for example, that operational B2B

managers conform to the conventions of strategy-making imposed on them from above, while recognising that the success of their business unit depends on less formal strategies that are based on relationship and network concepts. Equally, one might discover a B2B firm that has entirely forsworn the conventional strategic planning paraphernalia and replaced it with a process that focuses entirely on individual customer and supplier relationships and the wider network within which they are embedded. In this phase we can also consider 'strategic context': the fact that strategies, like relationships, have a past and a future as well as a present, and are developed at many different levels; such in-depth analysis should allow us to investigate this complexity and begin developing an understanding of the strategic portfolios that many companies are immersed in – either consciously or unconsciously. In any event, this phase of the study promises to be the most daunting, if also perhaps the most interesting.

Table 5: Early Ideas for the Development of a Questionnaire for Business Practitioners	On a scale of 1 (Not at all important) to 5 (Very important) indicate how important the following factors are in the strategic planning process at your firm.					
	1	2	3	4	5	Don't Know
Analysis of the general business environment	○	○	○	○	○	○
Analysis of your immediate competitors	○	○	○	○	○	○
Analysis of strengths, weaknesses, opportunities & threats (SWOT analysis)	○	○	○	○	○	○
Analysis of individual relationships with important customers	○	○	○	○	○	○
Understanding the value that we create for customers	○	○	○	○	○	○
Understanding the business network of which we are a part	○	○	○	○	○	○
Are there important factors in the strategic planning process at your firm that were not included in the list above? If so, please type in the name of those factors here.	Other important factors (type below)					

Note: Table includes indicative questions only; additional questions to be added.

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Appendix 1: Summary of the articles used in the analysis

Year	Location	1st author affiliation	Authors
2000	Bath	UK	Cousins, Spekman
2000	Bath	Finland	Helander, Hirvonen
2000	Bath	Sweden	Johanson (M.)
2000	Bath	France	Lemaire
2000	Bath	France	Durrieu, Mandjak
2000	Bath	Sweden	Rundh
2001	Oslo	Sweden	Baraldi
2001	Oslo	Sweden	Brunninge
2001	Oslo	Norway	Buvik, Gulbrandsen, Sandvik
2001	Oslo	France	Cova, Crespin-Mazet, Salle
2001	Oslo	Australia	Barrett, Fletcher
2001	Oslo	Australia	Freeman
2001	Oslo	Finland	Törnroos, Hedaa
2001	Oslo	Norway	Jevnaker
2001	Oslo	USA	Johnson (H.), Johnson (W.C.)
2001	Oslo	Denmark	Jørgensen
2001	Oslo	UK	Harland, Walker, Knight, Sutton
2001	Oslo	Finland	Järvelin, Mittilä
2001	Oslo	UK	Mouzas
2001	Oslo	France	Sauvée
2001	Oslo	Hungary	Lanyi, Mandjak, Veres
2001	Oslo	Slovenia	Brenèiè, Žabkar
2002	Perth	UK	Ford, Håkansson, Snehota, Gadde
2002	Perth	Sweden	Axelsson, Agndal
2002	Perth	Sweden	Lindberg-Repo
2002	Other	Australia	Wilkinson, Young
2002	Other	Australia	Wilkinson, Debenham
2003	Lugano	Portugal	Brito, Roseira
2003	Lugano	Italy	Ancarani, Shankar
2003	Lugano	UK	Brady
2003	Lugano	Portugal	Brito, Roseira
2003	Lugano	Italy	Stocchetti, Volpato, Buzzavo
2003	Lugano	Portugal	Ferreira
2003	Lugano	France	Pardo, Georges, Guenzi
2003	Lugano	Australia	Olaru, Purchase
2003	Lugano	Sweden	Rundh
2003	Lugano	Italy	Tunisini, Snehota
2003	Lugano	Poland	Talarczyk
2003	Lugano	Finland	Halinen, Tikkanen
2003	Lugano	Norway	Pedersen, Holmen, Håkansson
2004	Copenhagen	UK	Gilchrist, Easton, Lenney
2004	Copenhagen	UK	Canning, Brennan
2004	Copenhagen	UK	Cunningham (M.)
2004	Copenhagen	Denmark	Freytag
2004	Copenhagen	Denmark	Mikkelsen, Freytag
2004	Copenhagen	Norway	Solberg, Durrieu
2004	Copenhagen	Finland	Westerlund
2005	Rotterdam	Sweden	Dubois, Wynstra
2005	Rotterdam	UK	Ford, Redwood
2005	Rotterdam	Finland	Lindblom, Olkkonen
2005	Rotterdam	Tanzania	Mukasa, Jaensson, Rutashobya
2005	Rotterdam	Japan	Hosoi, Ohnishi, Takemura, Wang
2005	Rotterdam	Russia	Tretyak, Sheresheva
2005	Rotterdam	Italy	Tunisini, Bocconcelli
2005	Other	Australia	Wilkinson, Young

2006	Milan	Belgium	Matthyssens, Buyl
2006	Milan	Sweden	Baralsi, Brennan, Harrison, Tunisini, Zolkiewski
2006	Milan	Germany	Jahns, Moser, Hartmann
2006	Milan	Sweden	Rundh
2006	Milan	Sweden	Borgström, Hertz
2006	Milan	Germany	Paulssen, Sommerfeld
2006	Milan	Italy	Zucchella, Servais
2006	Milan	New Zealand	Rod
2006	Milan	UK	Zolkiewski, Turnbull
2006	Milan	Italy	Nadin
2006	Milan	UK	Talwar, Burton, Murphy
2006	Milan	Russia	Smirnova, Kouctch
2006	Milan	Finland	Lemmetyinen, Go, van der Horst
2006	Milan	Germany	Schaller
2006	Milan	Italy	Aquilani
2006	Milan	Denmark	Fretag
2006	Milan	UK	Catulli, Annia, Ingleby
2006	Milan	Tanzania	Allan, Rutashobya
2006	Milan	Not given	Not given
2006	Milan	Finland	Helander, Möller
2006	Milan	Not given	Not given
2006	Milan	Sweden	Jansson, Boye
2006	Milan	Germany	Hellingrath, Mehicic-Eberhardt
2006	Milan	Norway	Solberg, Durrieu
2006	Milan	Sweden	Andresen, Bergman, Hallen
2006	Milan	The Netherlands	Dittrich
2007	Manchester	Sweden	Baraldi, Brennan, Harrison, Zolkiewski
2007	Manchester	Sweden	Borgström, Hertz, Nyberg
2007	Manchester	Italy	Cantù, Corsaro
2007	Manchester	UK	Catulli, Annia, Ingleby
2007	Manchester	Australia	Freeman
2007	Manchester	Sweden	Gottfridsson
2007	Manchester	Germany	Güthenke
2007	Manchester	Finland	Leminen, Anttila, Tinnilä
2007	Manchester	France	Spencer
2007	Manchester	Sweden	Tarnovskaya, Ghauri
2007	Manchester	UK	Tyler, Medlin
2007	Manchester	Japan	Wang, Hosoi, Takemura
2007	Manchester	Australia	Wilkinson, Young, Ladley
2008	Uppsala	Sweden	Jansson
2008	Uppsala	France	Cova, Spencer
2008	Uppsala	Finland	Lintukangas
2008	Uppsala	Norway	Harrison, Prenkert
2008	Uppsala	Sweden	Andresen, Lundberg, Roxenhall
2008	Uppsala	UK	Ford
2008	Uppsala	Poland	Mitręga
2008	Uppsala	Sweden	Borgström and Hertz
2008	Uppsala	Finland	Nyström, Törnroos, Ramstr
2008	Uppsala	The Netherlands	Weele, Mirjam, van der Valk
2008	Uppsala	France	Crespin Mazet, Poissonnier, Cateura
2008	Uppsala	France	Crespin Mazet, Sitz
2008	Uppsala	UK	Brennan, Gressetvold, Zolkiewski

Appendix 2: Codes & sub-codes used in the analysis

Strategic Theme	ISC (Identified Strategic Concept)	Major Keyword(s)
FMK01A1 Customer and relationship/network	Relational marketing practices [A50]	FMK01A1
	Key account management strategy [A29, A33]	FMK01A1
	Relationship marketing [A16,A21,A22,A50]	FMK01A1
	Supplier-customer relationship [A56]	FMK01A1, AMK02B1
	Customer relationship [A61]	FMK01A1
	Customer relationship portfolio strategy [A66]	FMK01A1, _____
	Customer relationship strategy [A101]	FMK01A1
total: 13	Relational marketing strategy [A50, A101]	FMK01A1
FMK01A2 Customer and no relationship/network	Value to customer [A05]	FMK01A2, REJ02
	Export marketing strategy [A22]	FMK01A2, FMK15
	Marketing strategy [A03,A04,A21,A22,A27, A33,A42,A47,A52,A59]	FMK01A2
	Agressive marketing strategy [A53]	FMK01A2
	Customer service [A37]	FMK01A2
	Market positioning [A19,A45,A54]	FMK01A2, REJ03
	Marketing control [A45]	FMK01A2
	Supply chain management strategy [A78]	FMK01A2
	Strategic customers [A90]	FMK01A2
	Key customer account management [A90]	FMK01A2
	Market driving strategy [A91]	FMK01A2
	Customisation strategy [A102]	FMK01A2
total:23	Long term customer strategy [A40]	FMK01A2
FMK01B1 Supplier and relationship/network	Strategic management of supply networks [A17]	FMK01B1, FMK01C
	Supply network positioning [A36]	FMK01B1, FMK01C
	Sourcing strategy and supply network [A39]	FMK01B1, FMK01C
total:4	Supplier relationship management [A97]	FMK01B1
FMK01B2 Supplier and no relationship/network	Strategic supply [A01]	FMK01B2
	Supply strategy [A01]	FMK01B2
	Sourcing and purchasing strategy [A43]	FMK01B2
	Purchasing strategy [A43,A48,A88,A105]	FMK01B2
	Sourcing strategy [A43,A44]	FMK01B2

	Supplier management [A55]	FMK01B2
	Supply management strategy [A30]	FMK01B2
	Supply base strategy [A36]	FMK01B2
	Supply chain [A59]	FMK01B2
	Supply strategy [A75]	FMK01B2
	Global sourcing strategy [A83]	FMK01B2, FMK15
	Supply chain strategies [A102]	FMK01B2
	Relation-oriented purchasing strategy [A104]	FMK01B2
	Collective purchasing strategy [A105]	FMK01B2
total:20	Transaction-oriented purchasing strategy [A104]	FMK01B2, ———
FMK01C Network	Strategic management of supply networks [A17]	FMK01B1, FMK01C
	Supply network positioning [A36]	FMK01B1, FMK01C
	Sourcing strategy and supply network [A39]	FMK01B1, FMK01C
	Network strategy [A03,A07, A19, A24,A30,A32,A38]	FMK01C
	Strategic network [A08,A46,A47]	FMK01C
	Network position [A17,A34]	FMK01C, REJ03
	Interorganisational strategy [A20]	FMK01C, FMK01D
	Strategic interdependence [A20]	FMK01C
	Centrality as network strategy [A34]	FMK01C
	Networking [A51]	FMK01C
	Strategic network partners [A46]	FMK01C
	Local networks [A62]	FMK01C
	Foreign networks [A62]	FMK01C, FMK15
	Network strategy [A64]	FMK01C
	Value network [A76]	FMK01C, REJ02
	Network specific [A77]	FMK01C
	Network strategy [A78,A81]	FMK01C
	Strategic network [A80]	FMK01C
	Competition within networks [A83]	FMK01C, FMK04
	Interaction strategies in business networks [A94]	FMK01C, FMK01E
	Network strategising [A98]	FMK01C
	Strategising in industrial networks [A102]	FMK01C
total:34	Strategic regional network [A80, A99]	FMK01C
FMK01D Relationship (also: cooperation, ...)	Interorganisational strategy [A20]	FMK01C, FMK01D
	Relationship value [A05,A37,A46]	FMK01D, REJ02

	Relationship strategy [A16, A26, A33, A47,A67,A72]	FMK01D
	Building relationships [A06]	FMK01D
	Relationship orientation [A16]	FMK01D
	Relationship management [A16,A17,A18]	FMK01D
	Relationship portfolio [A18]	FMK01D
	Strategic relationship [A60]	FMK01D
	Relationship building strategies [A93]	FMK01D
	Cooperative strategy [A94]	FMK01D
	Collaborative interaction [A97]	FMK01D, FMK01E
total:21	Collaboration capability [A84]	FMK01D, FMK02
FMK01E Interaction	Interaction strategy [A37]	FMK01E
	Mutual investments strategy [A37]	FMK01E
	Adaptation [A41]	FMK01E
	Interactive [A49, A102]	FMK01E
	Collaborative inter-enterprise strategy [A78]	FMK01E
	Collaborative strategy [A78]	FMK01E
	Collaboration strategy [A81]	FMK01E
	Interactive strategy [A82]	FMK01E
	Interaction strategies in business networks [A94]	FMK01C, FMK01E
total:11	Collaborative interaction [A97]	FMK01D, FMK01E
FMK01F Strategic alliances, Joint Ventures	Strategic alliance [A28]	FMK01F
	International strategic alliance [A45]	FMK01F, FMK15
	Joint venture [A83]	FMK01F
total:4	Outward-inward strategic partnerships [A86]	FMK01F
FMK01G Channel, Distribution	Channel management [A56]	FMK01G
	Distribution strategy [A76]	FMK01G
total:3	Multichannel strategy [A65]	FMK01G
FMK01H Licensing	Licensing strategy [A72, A85]	FMK01H
total:2		
FMK02 Capabilities, competencies, and	Strategic resource [A01]	FMK02

resource-based view of the firm		
	Organisational learning [A17]	FMK02
	Core competencies [A02,A09]	FMK02
	Company's competence framework [A17]	FMK02
	Companies' competences [A10]	FMK02
	Dynamic capabilities [A14]	FMK02
	Capabilities development [A62]	FMK02
	Knowledge based on strategy [A84]	FMK02
total:10	Collaboration capability [A84]	FMK01D, FMK02
FMK04 Competition and competitive analysis	Competitive advantage [A01,A37,A59,A61,A77A93]	FMK04
	Competitive behaviour [A42]	FMK04
	Competition intensification [A04]	FMK04
	Competitive situation [A06]	FMK04
	International competition [A06]	FMK04, FMK15
	Market competition [A28]	FMK04
	Competition analysis [A29]	FMK04
	Competitive tension [A31]	FMK04
	Competition within networks [A83]	FMK01C, FMK04
	Competing actors [A87]	FMK04
total:16	Business competitiveness [A99]	FMK04
FMK06 Corporate restructuring	Exit strategy [A12]	FMK06
total:2	Restructuring strategy [A35]	FMK06
FMK07 Corporate strategy	Business strategy [A09, A46,A73,A89]	FMK07
total:	Corporate strategy [A04, A25, A54]	FMK07
FMK12 Environmental modelling: governmental, social, and political influences on strategy	Environmental pressures [A04]	FMK12
	Market environment [A06]	FMK12
	International environment [A06]	FMK12, FMK15
	Business environment [A13,A14,A35]	FMK12
	Systems properties [A48]	FMK12
	Strategic misfit [A89]	FMK12
	Internal environment [A90]	FMK12
total:10	External environment [A90]	FMK12

FMK14 Functional strategies	Bidding strategy [A10]	FMK14
	Communication strategy [A12, A26]	FMK14
	Differentiation strategy [A15]	FMK14
	Information [A37]	FMK14
	Brand strategy [A68]	FMK14
	Promotion strategy [A70]	FMK14
	Price strategy [A71]	FMK14
	Generic strategies [A79]	FMK14
	Strategic pricing [A89]	FMK14
	Industrial pricing strategy [A89]	FMK14
total:13	Branding strategy [A106]	FMK14
	Selling strategy by web [A70]	FMK14
FMK15 Global, international, and multinational strategies	Export marketing strategy [A22]	FMK01A2, FMK15
	International strategic alliance [A45]	FMK01F, FMK15
	International competition [A06]	FMK04, FMK15
	International environment [A06]	FMK12, FMK15
	Global strategy [A31, A45]	FMK15
	Internationalisation strategy [A11,A25,A32,A45,A62,A72,A79,A83,A85,A99]	FMK15
	Foreign networks [A62]	FMK01C, FMK15
	Globalising markets [A79]	FMK15
	International strategy [A81]	FMK15
	Global sourcing strategy [A83]	FMK01B2, FMK15
	Multinational strategy [A83]	FMK15
	De-internationalisation strategy [A86]	FMK15
	Global strategy [A90]	FMK15
	Sub-national strategy [A99]	FMK15
total:25	National strategy [A99]	FMK15
FMK18 Leadership, management style, and learning	Expectation management [A18]	FMK18
	Strategic management [A38,A102]	FMK18
total:3		
FMK19 Methodologies, theories, and research issues	Theoretical perspectives [A38]	FMK19

	Literature on strategy [A57]	FMK19
	Schools of thought in strategy [A57]	FMK19
	Rational planning approach, Ansoff [A57]	FMK19, ___
	Positioning approach, Porter [A57]	FMK19, ___
	Resource-based view, Barney [A57]	FMK19, ___
	Deliberate/emergent approach, Mintzberg [A57]	FMK19, ___
	Strategy-as-practice approach, Whittington [A57]	FMK19, ___
	Strategy literature [A60]	FMK19
	IMP strategy [A96]	FMK19
	Taxonomy of strategic research [A107]	FMK19
	Classification of strategies [A79]	FMK19
total:13	Strategy fields [A107]	FMK19
FMK23 R&D, technology, innovation	IT strategy [A07,A80]	FMK23
	Product development strategy [A27]	FMK23
	R&D collaboration [A81]	FMK23
total:5	Open innovation strategy [A81]	FMK23
REJ01 Boundaries	Acquisition strategy [A54]	REJ01
	Outsourcing [A36]	REJ01
	Insourcing [A36]	REJ01
	Vertical integration [A09]	REJ01
total:5	Governance [A09]	REJ01
REJ02 Value	Relationship value [A05,A37,A46]	FMK01D, REJ02
	Value creation process [A02,A54]	REJ02
	Value dimensions [A05]	REJ02
	Value-driven management [A37]	REJ02
	Value to customer [A05]	FMK01A2, REJ02
total:9	Value network [A76]	FMK01C, REJ02
REJ03 Power, position	Conflict strategy [A12]	REJ03
	Power [A60]	REJ03
	Strategising through role [A103]	REJ03, REJ04
	Strategising through position [A103]	REJ03
	Strategic positions [A105]	REJ03
	Market positioning [A19,A45,A54]	FMK01A2, REJ03
total:10	Network position [A17,A34]	FMK01C, REJ03

REJ04 Process, (time, change, development, planning, initiation, implementation)	Intended business strategy [A36]	REJ04
	Strategic change [A06]	REJ04
	Strategic development [A19, A37, A45, A47,A79,A102]	REJ04
	Strategy implementation [A19]	REJ04
	Strategising [A57, A102,A103]	REJ04
	Strategic planning [A68]	REJ04
	Deliberate strategy [A77]	REJ04
	Strategic intention [A77]	REJ04
	Strategy implementation [A78]	REJ04
	Strategy process [A57,A82, A98]	REJ04
	Strategy formulation [A82]	REJ04
	Strategy evolution [A94]	REJ04
	Strategists [A98]	REJ04
	Strategising phase [A98]	REJ04
	Strategy-as-practice [A102]	REJ04
	Dynamics of strategy [A102]	REJ04
	Strategy development [A102]	REJ04
	Procedural strategizing [A102]	REJ04
total:36	Strategising through role [A103]	REJ03, REJ04
	Strategising trajectories [A96]	REJ04
	Strategic approaches [A04]	REJ04
	Strategic acting [A14, A19]	REJ04
	Strategic motivation [A15]	REJ04
	Strategic goals [A68]	REJ04
	New strategy selection [A98]	REJ04
	Organizational strategies [A102]	REJ04
	Strategic thinking [A103]	REJ04
REJ05 Motivation	Individual [A49]	REJ05
	Individual strategy [A84]	REJ05
Total 6	Collective strategy [A84]	REJ05
	Conjoint strategic action [A84]	REJ05
	Selfish strategy [A94]	REJ05
	Matching strategy [A95]	REJ05
UC01 Other	Soft-assembled strategy [A23, A47]	UC01
	Rents [A58]	UC01
Total 5	Strategy creators [A87]	UC01
	Business/service model [A89]	UC01
	Nature of strategy [A100]	UC01